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Utopia, the City and the Machine

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LEWIS MUMFORD

Utopia, The City and The Machine

THE FACT that utopias from Plato to Bellamy have been visualized largely in terms of the city would seem to have a simple historical explanation. The first utopias we know were fabricated in Greece; and in spite of their repeated efforts at confederation, the Greeks were never able to conceive of a human commonwealth except in the concrete form of a city. Even Alexander had learned this lesson so well that at least part of the energies that might have gone into wider or more rapid conquests went into the building of cities. Once this tradition was established, later writers, beginning with Thomas More, found it easy to follow, all the more so because the city had the advantage of mirroring the complexities of society within a frame that respected the human scale.

Now, there is no doubt that utopian thinking was deeply influenced by Greek thought; moreover, as I shall try to show, this mode of thinking, precisely because it respected certain human capacities that the scientific method deliberately ignores, may still serve as a useful corrective for a positivism that has no place for the potential, the purposeful, or the ideal. But when one digs deeper into the utopian tradition, one finds that its foundations are buried in a much older past than that of Greece; and the question that finally arises is not, "Why are cities so often the locus of utopia?" but, "Why did so many of the characteristic institutions of utopia first come to light in the ancient city?"

Though I have long been a student of both utopias and cities, only in recent years have sufficient data come to light to suggest to me that the concept of utopia is not a Hellenic speculative fantasy, but a derivation from an historic event: that indeed the first utopia was the city itself. If I can establish this relationship, more than one insight should flow from it: not least an explanation of the authoritarian nature of so many utopias.

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I

But first let us look at utopia through the eyes of the Greeks. Strangely enough, though Plato approaches the domain of utopia in four of his dialogues, the one that had the greatest influence, the *Republic,* is the utopia that is most lacking in any concrete image of the city, except in the provision that it should be limited in numbers in order to maintain its integrity and unity.

In Plato's reaction against the democratic Athenian polis, the model that seduced him was that of Sparta: a state whose population was dispersed in villages. In the *Republic,* Plato retained many of the institutions of the ancient city and sought to give them an ideal dimension; and this in itself will throw an oblique light upon both the ancient city and the post-Platonic literature of utopias. But it is only in the *Laws* that Plato came down from the heights sufficiently to give a few details, all too few, of the actual physical characteristics of the city that would incorporate his moral and legal controls.

There is no need to go into Plato's meager descriptions of the city: most of the details of the urban environment in the *Laws* are drawn from actual cities, though in his glowing description of Atlantis his imagination seems to conjure up the bolder Hellenistic town planning of the Third Century B.C. What we must rather take note of in Plato are those singular limitations that his admirers—and I am still one of them—too charitably overlooked until our own day, when we suddenly found ourselves confronted by a magnified and modernized version of the kind of totalitarian state that Plato had depicted. Bertrand Russell had first made this discovery on his visit to Soviet Russia in the early nineteen-twenties, almost two decades before Richard Crossman and others pointed out that Plato's Republic, far from being a desirable model, was the prototype of the fascist state, even though neither Hitler nor Mussolini nor yet Stalin exactly qualified for the title of Philosopher-King.

In the Second Book of the *Republic,* it is true, Plato came near to describing the normative society of Hesiod's Golden Age: essentially the pre-urban community of the Neolithic cultivator, in which even the wolf and the lion, as the Sumerian poem put it, were not dangerous, and all the members of the community shared in its goods and its gods—in which there was no ruling class to exploit the villagers, no compulsion to work for a surplus the local community was not allowed to consume, no taste for idle luxury, no

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jealous claim to private property, no exorbitant desire for power, no institutional war. Though scholars have long contemptuously dismissed the "myth of the Golden Age," it is their scholarship, rather than the myth, that must now be questioned.

Such a society had indeed come into existence at the end of the last Ice Age, if not before, when the long process of domestication had come to a head in the establishment of small, stable communities, with an abundant and varied food supply: communities whose capacity to produce a surplus of storable grain gave security and adequate nurture to the young. This rise in vitality was enhanced by vivid biological insight and intensified sexual activities, to which the multiplication of erotic symbols bears witness, no less than a success unsurpassed in any later culture in the selection and breeding of plants and cattle. Plato recognized the humane qualities of these simpler communities: so it is significant that he made no attempt to recapture them at a higher level. (Was the institution of common meals for male citizens, as still practiced in Crete and Sparta, perhaps an exception?) Apart from this possibility, Plato's ideal community begins at the point where the early Golden Age comes to an end: with absolute rulership, totalitarian coercion, the permanent division of labor, and constant readiness for war all duly accepted in the name of justice and wisdom. So central was war to his whole conception of an ideal community that in the *Timaeus*, when Socrates confesses a desire to behold his static Republic in action, he asks for an account of how she waged "a struggle against her neighbors."

Everyone is familiar with the foundation stones of the *Republic*. The city that Plato pictures is a self-contained unit; and to ensure this self-sufficiency it must have enough land to feed its inhabitants and make it independent of any other community: autarchy. The population of this community is divided into three great classes: husbandmen and craftsmen, military "protectors," and a special caste of "guardians." The last have turned out to be the usual controllers and conditioners of most ideal commonwealths, either at their inception or in their daily government: Plato had rationalized kingship.

Once selected, the members of each of these classes must keep their own vocation and strictly mind their own business, taking orders from those above and not answering back. To make sure of perfect obedience, no "dangerous thoughts" or disturbing emotions must be permitted: hence a strict censorship that extends even to

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music. To ensure docility, the guardians do not hesitate to feed the community with lies: they form, in fact, an archetypal Central Intelligence Agency within a Platonic Pentagon. Plato's only radical innovation in the *Republic* is the rational control of human breeding through communal marriage. Though delayed, this practice came to fruition briefly in the Oneida Community, and today insistently haunts the dreams of more than one geneticist.

But note that the constitution and daily discipline of Plato's ideal commonwealth converge to a single end: fitness for making war. Nietzsche's observation that war is the health of the state applies in all its fullness to Plato's Republic, for only in war is such stringent authority and coercion temporarily tolerable. Let us remember this characteristic, for with one emphasis or another we shall find it in both the ancient city and in the literary myths of utopia. Even Bellamy's mechanized "nation in overalls," conscripted for twenty years labor service, is under the same discipline as a nation in arms.

If one thinks of Plato's scheme as a contribution to an ideal future, one must wonder whether justice, temperance, courage, and wisdom had ever before been addressed to such a contradictory "ideal" outcome. What Plato had actually accomplished was not to overcome the disabilities that threatened the Greek commonwealth of his day, but to establish a seemingly philosophic basis for the historic institutions that had in fact arrested human development. Though Plato was a lover of Hellenic society, he never thought it worth while to ask how the manifold values of the society that had brought both him and Socrates into existence could be preserved and developed: at most, he was honest enough to admit in the *Laws* that good men could still be found in "bad"—that is, unplatonic—societies.

What Plato did, I shall try to demonstrate, was to rationalize and perfect the institutions that had come into existence as an ideal pattern long before, with the founding of the ancient city. He purposed to create a structure that, unlike the actual city in history, would be immune to challenge from within and to destruction from without. Plato knew too little history to realize where his imagination was leading him: but in turning his back on contemporary Athens he actually retreated even further back than Sparta, though he had to wait more than two thousand years before the development of a scientific technology would make his singularly inhumane ideals realizable.

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One other attribute of Plato's utopia must be noted for it was not merely transmitted to later utopias, but now threatens, paradoxically, to be the final consummation of our supposedly dynamic society. To fulfill its ideal, Plato makes his Republic immune to change: once formed, the pattern of order remains static, as in the insect societies to which it bears a close resemblance. Change, as he pictured it in the *Timaeus,* occurred as a catastrophic intrusion of natural forces. From the first, a kind of mechanical rigidity afflicts all utopias. On the most generous interpretation, this is due to the tendency of the mind, or at least of language, noted by Bergson, to fix and geometrize all forms of motion and organic change: to arrest life in order to understand it, to kill the organism in order to control it, to combat that ceaseless process of self-transformation which lies at the very origin of species.

All ideal models have this same life-arresting, if not life-denying, property: hence nothing could be more fatal to human society than to achieve its ideals. But fortunately nothing is less likely to happen, since, as Walt Whitman observed, it is provided in the nature of things that from every consummation will spring conditions that make it necessary to pass beyond it—a better statement than Marxian dialectic supplies. An ideal pattern is the ideological equivalent of a physical container: it keeps extraneous change within the bounds of human purpose. With the aid of ideals, a community may select, among a multitude of possibilities, those which are consonant with its own nature or that promise to further human development. This corresponds to the role of the entelechy in Aristotle's biology. But note that a society like our own, committed to change as its principal ideal value, may suffer arrest and fixation through its inexorable dynamism and kaleidoscopic novelty no less than a traditional society does through its rigidity.

II

Though it is Plato's influence that first comes to mind when we think of later utopias, it is Aristotle who considers more definitely the actual structure of an ideal city; in fact, one may say that the concept of utopia pervades every page of the *Politics.* For Aristotle, as for any other Greek, the constitutional structure of a polity had a physical counterpart in the city; for it was in the city that men came together not only to survive military attack or to become wealthy in trade but to live the best life possible. But Aristotle's utopian bias went beyond this; for he constantly compares the actual cities whose

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constitutions he had studied so carefully with their ideal possible forms. Politics for him was the "science of the possible," in a quite different sense from the way that phrase is now used by those who would cover up their mediocre expectations or their weak tactics by succumbing, without any counter-effort, to probability.

Just as every living organism, for Aristotle, had the archetypal form of its species, whose fulfillment governed the whole process of growth and transformation, so the state, too, had an archetypal form; and one kind of city could be compared with another not just in terms of power, but in terms of ideal value for human development. On one hand, Aristotle considered the polis as a fact of nature, since man was a political animal who could not live alone unless he were either a brute or a god. But it was equally true that the polis was a human artifact; its inherited constitution and its physical structure could be criticized and modified by reason. In short, the polis was potentially a work of art. As with any work of art, the medium and the artist's capability limited the expression; but human evaluation, human intention, entered into its actual design. Not dissatisfaction over the shortcomings or failures of the existing polis so much as confidence in the possibility of improvement sustained Aristotle's rational interest in utopias.

The distinction that More, an inveterate punster, made when he chose the word utopia, as an ambiguous midterm between outopia, no place, and eutopia, the good place, applies equally to the difference between Plato's and Aristotle's conceptions. Plato's Republic was in Cloudcuckooland: and after his disastrous experience in Syracuse, he could hardly hope to find it anywhere else. But Aristotle, even when in the Seventh Book of the *Politics* he outlines the requirements for an ideal city cut to his own pattern, still has his feet on the earth: he does not hesitate to retain many traditional characteristics, even such accidental ones as the narrow, crooked streets which might help confuse and impede an invading army.

In every actual situation, then, Aristotle saw one or more ideal possibilities that arose out of the nature of the community and its relations with other communities, as well as out of the constitution of the groups and classes and vocations within the polis. His purpose, he declares clearly in the first sentence of the Second Book, "is to consider what form of political community is the best of all for those who are most able to realize their ideal of life." Perhaps one should underline this statement, for in it Aristotle expressed one of the permanent contributions of the utopian mode of thought: the

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perception that ideals themselves belong to the natural history of man the political animal. It is on these terms that he devotes this chapter to a criticism of Socrates as interpreted by Plato and then goes on to examine other utopias, such as those of Phaleas and Hippodamus.

The association of the potential and the ideal with the rational and the necessary was an essential attribute of Hellenic thought, which took reason itself to be the definitive central characteristic of man: it was only in the social disintegration of the Third Century B.C. that this faith in reason gave way to a superstitious belief in chance as the ultimate god of human destiny. But when one examines Aristotle's exposition of the ideal city, one is again struck, as one is with Plato, by how restricted these original Greek ideals were. Neither Aristotle nor Plato nor even Hippodamus could conceive a society that overpassed the bounds of the city: none of them could embrace a multi-national or poly-cultured community, even if centered in the city; nor could they admit, even as a remote ideal, the possibility of breaking down permanent class divisions or doing away with the institution of war. It was easier for these Greek utopians to conceive of abolishing marriage or private property than of ridding utopia of slavery, class domination, and war.

In this brief review of Greek utopian thought one becomes conscious of limitations that were monotonously repeated in later utopian writers. Even the humane More, though tolerant and magnanimous on the subject of religious convictions, accepted slavery and war; and the very first act of King Utopus, when he invaded the land of Utopia, was to put his soldiers and the conquered inhabitants to work digging a broad canal that turns the territory into an island and cuts it off from the mainland.

Isolation, stratification, fixation, regimentation, standardization, militarization—one or more of these attributes enter into the conception of the utopian city, as expounded by the Greeks. And these same features remain, in open or disguised form, even in the supposedly more democratic utopias of the nineteenth century, such as Bellamy's *Looking Backward.* In the end, utopia merges into the dystopia of the twentieth century; and one suddenly realizes that the distance between the positive ideal and the negative one was never so great as the advocates or admirers of utopia had professed.

III

So far I have discussed utopian literature in relation to the

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concept of the city, as if utopia were a wholly imaginary place, and as if the classic utopian writers, with the exception of Aristotle, were formulating a prescription for a quite unrealizable mode of life, one that could be achieved only under exceptional conditions or in a remote future.

In this light, every utopia, down to those of H. G. Wells, presents a real puzzle. How could the human imagination, supposedly liberated from the constraints of actual life, be so impoverished? And this limitation is all the stranger in Fourth Century Greece, for the Hellenic polis had in fact emancipated itself from many of the disabilities of the power-driven oriental monarchies. How is it that even the Greeks could visualize so few alternatives to customary life? And why did so many evils, long acknowledged if uncorrected, remain in every utopia, in return for its poor show of promised goods? Where did all the compulsion and regimentation that mark these supposedly ideal commonwealths come from?

One can give more than one plausible answer to these questions. Perhaps the one that would be least palatable to our present science-oriented generation is that the abstract intelligence, operating with its own conceptual apparatus, in its own self-restricted field, is actually a coercive instrument: an arrogant fragment of the full human personality, determined to make the world over in its own oversimplified terms, willfully rejecting interests and values incompatible with its own assumptions, and thereby depriving itself of any of the cooperative and generative functions of life—feeling, emotion, playfulness, exuberance, free fantasy—in short, the liberating sources of unpredictable and uncontrollable creativity.

Compared with even the simplest manifestations of spontaneous life within the teeming environment of nature, every utopia is, almost by definition, a sterile desert, unfit for human occupation. The sugared concept of scientific control, which B. F. Skinner insinuates into his *Walden Two,* is another name for arrested development.

But there is another possible answer to these questions; and this is that the series of written utopias that came to light in Hellenic Greece were actually the belated reflections, or ideological residues, of a remote but genuine phenomenon: the archetypal ancient city. That this utopia in fact once existed can now be actually demonstrated: its real benefits, its ideal pretensions and hallucinations, and its harsh coercive discipline were transmitted, even after its negative features had become more conspicuous and formidable,

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to later urban communities. But in utopian literature the ancient city left, as it were, an after-image of its "ideal" form on the human mind.

Curiously, Plato himself, though seemingly as an afterthought, took pains to give his utopia this historic foundation; for, in the *Timaeus* and the *Critias*, he describes the city and the Island Empire of Atlantis in ideal terms that might well have applied to Pharaonic Egypt or Minoan Crete, even going so far as to give the Atlantean landscape, with its abundant natural resources, an ideal dimension that was lacking in the austere background of the *Republic*. As for antediluvian Athens, the supposedly historic community that conquered Atlantis nine thousand years before Solon's time, it was "by coincidence" a magnified embodiment of the ideal commonwealth pictured in the *Republic*. Later, in the *Laws*, he draws repeatedly on the historic institutions of Sparta and Crete, again closely linking his ideal future with a historic past.

While the motive for Plato's severely authoritarian utopia was doubtless his aristocratic dissatisfaction with demagogic Athenian politics which he considered responsible for the successive defeats that began with the Peloponnesian War, it is perhaps significant that his ideological withdrawal was coupled with a return to an earlier actuality which underwrote his ideals. That this idealized image came via the Egyptian priesthood at Sais, a country Plato as well as Solon had visited, provides at least a plausible thread of connection between the historic city in its originally divine dimensions and the more secular ideal commonwealths of a later period. Who can say, then, that it was only the problems of contemporary Athens and not also the actual achievements of the historic city that prompted Plato's excursions into utopia?

Though at first reading this explanation may seem far-fetched, I propose now to indicate the data mainly from Egypt and Mesopotamia that make this historic hypothesis plausible. For it is at the very beginning of urban civilization that one encounters not only the archetypal form of the city as utopia but also another coordinate utopian institution essential to any system of communal regimentation: the machine. In that archaic constellation the notion of a world completely under scientific and technological control, the dominant utopian fantasy of our present age, first becomes evident. My purpose is to show that at this early stage the historic explanation and the philosophic one come together. If we understand why the earliest utopia miscarried, we shall perhaps have an

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insight into the dangers our present civilization faces; for history is the sternest critic of utopias.

IV

This reference to the archetypal city that greets us a little before the beginning of recorded history as "utopia" is no idle figure of speech. To make this clear, let me first paint a composite picture of the city as Egyptian, Mesopotamian, and later records reveal it to us. First of all, the city is the creation of a king (Menes, Minos, Theseus), acting in the name of a god. The king's first act, the very key to his authority and potency, is the erection of a temple within a heavily walled sacred enclosure. And the construction of another wall to enclose the subservient community turns the whole area into a sacred place: a city.

Without this strong religious underpinning, the king's magic powers would have been lacking and his military prowess would have crumbled. Roland Martin's observations about the later Aegean cities, that the city is "un fait du prince," is precisely what distinguishes this new collective artifact from earlier urban structures.

By effecting a coalition between military power and religious myth, under conditions I first attempted to outline in the symposium published as *City Invincible* (Carl Kraeling, editor), the hunter-chieftain of the later Neolithic economy transformed himself into a king; and kingship established a mode of government and a way of life radically different from that of the proto-historic village community, as described, from the Sumerian records, by Thorkild Jacobsen. In this new constitution, the king gathers to himself all the powers and functions that were once diffused in many local communities; and the king himself becomes the godlike incarnation of collective power and communal responsibility.

Henri Frankfort's penetrating exposition of the role of kingship in early civilizations provides a clue to the utopian nature of the city: for, if it was through the king that the functions of the community were concentrated, unified, magnified, and given a sacred status, it was only in the city that the power and glory of this new institution could be fully manifested in monumental works of art. The mystique of kingship, Frankfort suggests, was supported by its immense practical contributions in distributing agricultural plenitude, handling population growth, and creating collective wealth. The king's power to make decisions, to by-pass communal deliberations, to defy or nullify custom brought about vast communal

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changes, far beyond the scope of village communities. Once amassed in cities, governed by a single head, regimented and controlled under military coercion, a large population could act as one, with a solidarity otherwise possible only in a small community.

If the king represents or, as in Egypt, incarnates divine power and communal life, the city visibly incorporates them: its esthetic form and conscious order testify to an immense concentration of energy no longer needed exclusively for the functions of nutrition and reproduction. The only limits to what might be accomplished in such an organization, while the myth of divine kingship remained in working order, were those of the human imagination. Up to this time, the human community had been widely dispersed in hamlets, villages, country towns: isolated, earthbound, illiterate, tied to ancestral ways. But the city was, from the beginning, related to the newly perceived cosmic order: the sun, the moon, the planets, the lightning, the storm wind. In short, as Fustel de Coulanges and Bachofen pointed out a century ago, the city was primarily a religious phenomenon: it was the home of a god, and even the city wall points to this super-human origin; for Mircea Eliade is probably correct in inferring that its primary function was to hold chaos at bay and ward off inimical spirits.

This cosmic orientation, these mythic-religious claims, this royal preemption of the powers and functions of the community are what transformed the mere village or town into a city: something "out of this world," the home of a god. Much of the contents of the city—houses, shrines, storage bins, ditches, irrigation works—was already in existence in smaller communities: but though these utilities were necessary antecedents of the city, the city itself was transmogrified into an ideal form—a glimpse of eternal order, a visible heaven on earth, a seat of the life abundant—in other words, utopia.

The medieval Christian picture of heaven as a place where the elect find their highest fulfillment in beholding God and singing his praises is only a somewhat etherealized version of the primordial city. With such a magnificent setting as background, the king not merely played god but exercized unqualified power over every member of the community, commanding services, imposing sacrifices, above all enforcing abject obedience on penalty of death. In the city, the good life was achieved only by mystical participation in the god's life and that of his fellow deities, and by vicarious achievement through the person of the king. There lay the original compensation for giving up the petty democratic ways of

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the village. To inhabit the same city as a god was to be a member of a super-community: a community in which every subject had a place, a function, a duty, a goal, as part of a hierarchic structure representing the cosmos itself.

The city, then, as it emerged from more primitive urban forms, was not just a larger heap of buildings and public ways, of markets and workshops: it was primarily a symbolic representation of the universe itself. Like kingship, the city was "lowered down from heaven" and cut to a heavenly pattern; for even in the relatively late Etruscan and Roman cultures, when a new city was founded, a priest held the plow that traced the outline of the walls, while the main streets were strictly oriented to the points of the compass. In that sense, the archetypal city was what Campanella called his own utopia: a City of the Sun. Such an embodiment of esthetic magnificence, quantitative power, and divine order captivated the mind of even distant villagers who would make pilgrimages to the city on days of religious festival. This probably accounts for the fact that the punishing labors and tyrannous exactions which made this "utopia" possible were so submissively accepted by the whole community.

But still another characteristic utopian trait marked the ancient city, if we may read the earliest records in the Near East with as much confidence as later data from the Peru of the Incas. Not only did the lowliest subject have a direct glimpse of heaven in the setting of the temple and the palace, but with this went a secure supply of food, garnered from the nearby fields, stored under guard in the granary of the citadel, distributed by the temple. The land itself belonged to the god or the king, as it still does ultimately in legal theory to their abstract counterpart, the sovereign state; and the city forecast its literary successor in treating the land and its agricultural produce as a common possession: fair shares, if not equal shares, for all. In return, every member of the community was obliged to perform sacrifices and to devote at least part of the year to laboring for the city's god.

By substituting conscription and communism for the later institutions of the market, wage labor, private property, and money, the utopias of More, Cabet, and Bellamy all reverted to the primitive condition of this aboriginal urban organization: a managed economy under the direction of the king.

V

This brief summary suggests, I realize, a conclusion perhaps even

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more unacceptable at first glance than the notion that the Neolithic community, seen from the perspective of the Iron Age, once enjoyed the veritable Golden Age that Hesiod described.

If the present interpretation be sound, the ancient city was not only "utopia," but the most impressive and the most enduring of all utopias: one that actually fulfilled at the beginning the principal ideal prescriptions of later fantasies, and in many respects indeed surpassed them. For to an extraordinary extent the archetypal city placed the stamp of divine order and human purpose on all its institutions, transforming ritual into drama, custom and caprice into formal law, and empirical knowledge spotted with superstition into exact astronomical observation and fine mathematical calculation.

While the myth remained operative, a single agent of divine power, the king, unlike a village council of elders, could by spoken command bring about hitherto impossible improvements in the environment and alter human behavior. These were the classic conditions for constructing a utopia. Even when the myth of kingship dissolved, the city passed some of that power on to its citizens.

But one relevant question remains to be asked: At what price was this utopia achieved? What institutional apparatus made it possible to organize and build these vast ideal structures? And, if the ancient city was indeed utopia, what qualities in human nature or what defects in its own constitution caused it to change, almost as soon as it had taken form, into its opposite: a negative utopia, a dystopia or kakotopia? If eutopia became a mere wraith in the mind, a symbol of unattainable desires, of futile dreams, why did its dark shadow, kakotopia or hell, erupt so often in history, in an endless series of exterminations and destructions that centered in the city—a hell that still threatens to become a universal holocaust in our own time?

The answer to the first question may, I believe, provide a clue to the second condition. For the city that first impressed the image of utopia upon the mind was made possible only by another daring invention of kingship: the collective human machine, the platonic model of all later machines.

The machine that accompanied the rise of the city was directly a product of the new myth; but it long escaped recognition, despite a mass of direct and indirect evidence, because no specimen of it could be found in archeological diggings. The reason that this machine so long evaded detection is that, though extremely complicated, it was composed almost entirely of human parts. Fortunately

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the original model has been handed on intact through a historic institution that is still with us: the army.

Let me explain. In the period when the institution of kingship arose, no ordinary machine, except the bow and arrow, yet existed: even the wagon wheel had not yet been invented. With the small desultory labor force a village could command, and with the simple tools available for digging and cutting, none of the great utilities that were constructed in the Fertile Crescent could have been built. Power machinery was needed to move the vast masses of earth, to cut the huge blocks of stone, to transport heavy materials long distances, to set whole cities on an artificial mound forty feet high. These operations were performed at an incredible speed: without a superb machine at command, no king could have built a pyramid or a ziggurat, still less a whole city, in his own lifetime.

By royal command, the necessary machine was created: a machine that concentrated energy in great assemblages of men, each unit shaped, graded, trained, regimented, articulated, to perform its particular function in a unified working whole. With such a machine, work could be conceived and executed on a scale that otherwise was impossible until the steam engine and the dynamo were invented. The assemblage and the direction of these labor machines was the prerogative of kings and an evidence of their supreme power; for it was only by exacting unflagging effort and mechanical obedience from each of the operative parts of the machine that the whole mechanism could so efficiently function. The division of tasks and the specialization of labor to which Adam Smith imputes so much of the success of the so-called industrial revolution actually were already in evidence in the Pyramid Age, with a graded bureaucracy to supervise the whole process. Every part of the machine was regimented to carry out the king's will: "The command of the palace . . . cannot be altered. The King's word is right; his utterance, like that of a God, cannot be changed."

This new kind of complex power mechanism achieved its maximum efficiency in the era when it was first invented: in the case of the hundred thousand workers who built the Great Pyramid at Giza, that machine could develop ten thousand horse-power; and every part of its colossal job was performed with machine-like precision. The measurements of that pyramid, J. H. Breasted observed, were refined to almost a watchmaker's standard of accuracy—though the giant slabs of stone were hauled on sledges by manpower and there were no derricks or pulleys to hoist the blocks into position. This

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new mechanical power, this undeviating order, this mathematical refinement are still visible in the remaining artifacts. No earlier creation of man had ever exhibited this magnitude or this perfection.

Most of the dehumanized routines of our later machine technology were incorporated in the archetypal machine, usually in a more naked and brutal state. But the necessary suppression of all human autonomy except that of the king was likewise the imperative condition for operating this giant machine. In other words, the disciplined forces that transformed the humble human community into a gigantic collective work of art turned it into a prison in which the king's agents, his eyes and ears and hands, served as jailers.

Though the lock step discipline of the labor machine was happily alleviated by the art and ritual of the city, this power system was kept in operation by threats and penalties, rather than by rewards. Not for nothing was the king's authority represented by a scepter, for this was only a polite substitute for the mace, that fearful weapon by which the king would kill, with a single blow on the head, anyone who opposed his will. In one of the earliest representations of a king, the Narmer palette, the king holds a mace in his hand above a captive and, in the form of a bull, destroys a city. The price of utopia, if I read the record correctly, was total submission to a central authority, forced labor, lifetime specialization, inflexible regimentation, one-way communication, and readiness for war. In short, a community of frightened men, galvanized into corpselike obedience with the constant aid of the mace, the whip, and the truncheon. An ideal commonwealth indeed!

The archetypal machine, in other words, was an ambivalent triumph of human design. If it vastly widened the scope of human capability and created a visible heaven in the great city, exalting the human spirit as it had never been exalted by man's own works before, it likewise, by the very requirements of the mechanism, debased or wiped out precious human traits that even the humblest village still cherished. What proved equally damaging to the city was that the ability to command such powers produced paranoid fantasies in the rulers themselves: hostility, suspicion, murderous aggression, coupled with collective ambitions that no single city could satisfy.

Nothing is more conspicuous in the religious texts that follow upon the creation of the city and the invention of the human machine than the uncontrolled hostility that the gods display toward

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each other: in their hatred, their murderous aggression, their absence of moral constraint, their readiness to inflict sadistic punishments, they mirror the boasts and practices of kings. From the beginning the labor machine and the military machine performed interchangeable functions: as an offset to the regression and regimentation necessitated by the labor machine, the destruction of rival cities, the abasement of rival gods, became the chief means of manifesting royal power. If the utopia of the city did not in fact live up to its happy promise, it was because its very success promoted more exorbitant fantasies of unrestrained power. The building of cities was a creative act; but the war machine made a dystopia—total destruction and extermination—far easier to achieve. That is the dark hidden face of the ideal city that kingship had actually built.

VI

When one puts these two archetypal forms, the city and the machine, side by side, one is finally pressed to an all-but-inescapable conclusion: utopia was once indeed a historic fact and became possible, in the first instance, through the regimentation of labor in a totalitarian mechanism, whose rigors were softened by the many captivating qualities of the city itself, which raised the sights on all possible human achievement. Through the greater part of history, it was the image of the city that lingered in the human imagination as the closest approach to paradise that one might hope for on earth—though paradise, the original Persian word reminds us, was not a city but a walled garden, a Neolithic rather than a Bronze Age image.

In their pristine historic forms both the utopian city and the royal machine had only a short career. Fortunately in both cases, beneath the myth, the diverse and divergent realities of communal life remained in operation. Within the actual city, the old cooperative life of the village found a niche for itself; and eventually the family, the neighborhood, the workshop, the guild, the market, drew back to their own province some of the powers and initiatives that the king had claimed for himself and for the dominant minority that served him—the nobles, the priests, the scribes, the officials, the "engineers." The very mixture of vocations and occupations, of languages and cultural backgrounds within the city gave each member of the urban community the advantages of the wider whole,

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while various material appurtenances and social privileges, once monopolized by the citadel, slowly, over the millennia if not over the centuries, filtered down to the rest of the community. Even the Pharaoh's exclusive monopoly of immortality was broken after the revolutions that ended the Pyramid Age.

Yet the great lesson of the archetypal city, the power of human design to alter natural conditions and customary practices, was never entirely lost. This early success raised the hope, expressed in later utopias—best perhaps by Fourier and William Morris—that similar results could be attained by voluntary effort and free association and mutual aid, rather than by military compulsion, royal or platonic.

As for the Invisible Machine, it remained in existence mainly in its negative form—the army or military machine—for this was the backbone of the coercive power claimed everywhere by the successor of the city, the sovereign state. Obviously, these great collective machines, assembling thousands of working parts, were too powerful and too clumsy to be used on tasks smaller than road-building or canal-cutting. Meanwhile, small machines of wooden or metal parts were invented, with the same properties as their collective human prototype: heightened capacity to perform work with regularity and mechanical precision. Machines like the animal-drawn wagon, the potter's wheel, the loom, and the lathe not only lightened labor but enhanced human autonomy: they could operate without the mediation of priests, bureaucrats, and soldiers. With the invention of the water mill (Third Century B.C.) and the windmill (Seventh Century [?] A.D.) free labor at last achieved a command of energy on a scale that had been possible heretofore only through a regimented assemblage of manpower under a king.

In negative form, the utopian ideal of total control from above, absolute obedience below, never entirely passed out of existence. The will to exercise such control through the military machine incited the great military conquerers from Ashurbanipal to Alexander, from Genghis Khan to Napoleon, as well as many lesser imitators. The negative military form of the Invisible Machine was held in check over the greater part of history by two limiting factors: first its inherent tendency to produce, in the rulers of the machine, delusions of grandeur that intensified all its destructive potentialities and led in fact to repeated collective self-destruction. The other limiting condition was the fact that this authoritarian regime was passively challenged by the archaic, democratic, life-conserving vil-

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lage culture that has always embraced the larger part of mankind. And during the last millennium, the growth of voluntary forms of association, in synagogue, church, guild, university, and the self-governing city, undermined the unconditional, over-riding exercise of "sovereignty" necessary to assemble the Invisible Machine.

Until the sixteenth century, then, when Church and State re-united, in England, France, and Spain, and later in Prussia, as an all-embracing source of sovereign power, the chief conditions for extending the Invisible Machine were lacking. Even the political ideal of total control, as expressed by absolute monarchs like Henry VIII, Philip II, and Louis XIV, and various Italian Dukes, was for some centuries contested by vigorous democratic counter-movements. In its ancient and no longer viable form, kingship by divine right was defeated: but the idea of absolute power and absolute control re-entered the scene as soon as the other components of the Invisible Machine had been translated into more practical modern equivalents and re-assembled.

This last stage was not reached until our own generation; but the first decisive changes started in the sixteenth century.

Since it took three centuries to assemble the new Invisible Machine, and since earlier forms had not yet been identified, the rise of this great mechanical collective for long escaped contemporary observation. Because of the erroneous Victorian belief, still current in history textbooks, that the "industrial revolution" began in the eighteenth century, a vastly more important technological change has been ignored. The thousands of useful mechanical and electronic inventions that have been made, at an accelerating rate, during the last two centuries still conceal the even more significant restoration, in more scientific guise, of the Invisible Machine.

But in retrospect, the sequence is clear. Beginning in the sixteenth century, with the astronomical observations of Copernicus and Kepler, the cult of the sun came back, bringing cosmic order and regularity, already prefigured in the mechanical clock, into every department of life. Though the absolute powers of individual kings were reduced, the powers claimed by their successor, the impersonal sovereign state, were steadily increased, first by reducing the authority of religion as a source of higher knowledge and moral values, then by making all other corporate entities creatures of the sovereign power. "L'état, c'est moi," proclaimed Louis XIV, Le Roi Soleil, in words that even the earliest avatar of Atum-Re would have recognized as a factual statement. But it was only with

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the French Revolution that the state, under a republican mask, actually achieved in its system of universal conscription the powers that Louis XIV did not dare to exercise completely—but powers which the state now everywhere commands.

With this new mechanical assemblage came the uniformed standing army, whose very uniform was, after the printing press, the first example of mechanized mass production; and that army, in turn, was freshly disciplined everywhere by the same sort of rigorous drill, introduced by William of Orange, that produced the Sumerian or the Macedonian phalanx. In the eighteenth century, this widened mechanical discipline was transferred to the factory. On these foundations the new mechanical order, based on quantitative measurements, indifferent to human qualities or purposes, took form. As outlined by Galileo and Descartes, the new ideology of science, which was finally to become the central component of the Invisible Machine, reduced reality to the calculated, the measurable, the controllable: in other words, the universal world of the machine, both visible and invisible, both utilitarian and ideal.

These transformations came slowly, impeded both by surviving democratic institutions and traditions, and by smaller corporate economic enterprises, in which private property jealously contested the total control of the sovereign state. But the growth of science had meanwhile repaired the shaky ideological premises that had limited the efficiency of the ancient collective machines; and on the new foundations of post-Galilean science utopia again became possible.

Long before all the components of the Invisible Machine were consciously assembled, Francis Bacon, in his *New Atlantis,* was quick not merely to anticipate its benefits but to outline the conditions for its achievement: the application of science to all human affairs, "to the effecting of all things possible." What the temple and the priesthood and astronomical observation did to establish the authority of the king, Solomon's House and its new occupants would do to establish the authority of the machine. Unlike the steam engines and power looms that still engross the historian, the new machine is mainly an assemblage of human parts: scientists, technicians, administrators, physicians, soldiers. Though it has taken more than three hundred years to perfect the parts of this machine, its final organization has taken place within the last twenty years.

In the throes of the Second World War, the archetypal compact between kingship and priesthood was ratified, with a grant of

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virtually unlimited financial support and opportunity for science on condition that its priesthood would sanction and devote itself to magnifying vastly the powers of the sovereign entity. Within the space of less than a lustrum, the Invisible Machine had finally been re-assembled, with all its original potentialities inordinately inflated. The atom bomb symbolized this union of putative omnipotence with putative omniscience. So effective has been the coalition between these forces, so rapid their extension beyond the field of extermination and destruction, so all-embracing the Invisible Machine's monopoly of the instruments of both production and education, that its implicit goals and its ultimate destination have not yet been subject to any critical examination.

But one thing is already plain: in its new scientific form the Invisible Machine is no longer an agent for creating a visible heaven on earth in the form of the city. The autonomous machine, in its dual capacity as visible universal instrument and invisible object of collective worship, itself has become utopia, and the enlargement of its province has become the final end of life, as the guardians of our New Atlantis now conceive it.

The many genuine improvements that science and technics have introduced into every aspect of existence have been so notable that it is perhaps natural that its grateful beneficiaries should have overlooked the ominous social context in which these changes have taken place, as well as the heavy price we have already paid for them, and the still more forbidding price that is in prospect. Until the last generation it was possible to think of the various components of technology as additive. This meant that each new mechanical invention, each new scientific discovery, each new application to engineering, agriculture, or medicine, could be judged separately on its own performance, estimated eventually in terms of the human good accomplished, and diminished or eliminated if it did not in fact promote human welfare.

This belief has now proved an illusion. Though each new invention or discovery may respond to some general human need, or even awaken a fresh human potentiality, it immediately becomes part of an articulated totalitarian system that, on its own premises, has turned the machine into a god whose power must be increased, whose prosperity is essential to all existence, and whose operations, however irrational or compulsive, cannot be challenged, still less modified.

The only group that has understood the dehumanizing threats of

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the Invisible Machine are the *avant-garde* artists, who have caricatured it by going to the opposite extreme of disorganization. Their calculated destructions and "happenings" symbolize total decontrol: the rejection of order, continuity, design, significance, and a total inversion of human values which turns criminals into saints and scrambled minds into sages. In such anti-art, the dissolution of our entire civilization into randomness and entropy is prophetically symbolized. In their humorless deaf-and-dumb language, the *avant-garde* artists reach the same goal as scientists and technicians, but by a different route—both seek or at least welcome the displacement and the eventual elimination of man. In short, both the further affirmation of the mechanical utopia and its total rejection would beget dystopia. Wherever human salvation may lie, neither utopia nor dystopia, as now conceived, promises it.

VII

A summary word. Viewed objectively, the classic literature of utopias reveals a singularly barren tract of mind: even Plato's efforts, for all their many stimulating human insights, succeed better as a study in character contrasts, as for example between Socrates and Glaucon, than as an ideal revelation of natural human potentialities. Plato's utopias were by intention too close to archaic history to make history afresh in the future. As for those modern forms of utopia, which under the name of science fiction relate all ideal possibilities to technological innovations, they are so close to the working premises of modern civilization that they hardly have time to be absorbed as fiction before they become incorporated as fact.

If, with all these limitations, a learned body like ours still finds it worthwhile to discuss both myth and utopia, is this not perhaps a covert way of acknowledging that our present scientific methodology, which equates possibility only with chance, is inadequate to deal with every aspect of human experience? Through this respectably academic side-excursion into utopia are we not, with a prudence that touches on cowardice, actually approaching a much more fertile area, now weedy with neglect—the realm embracing potentiality as an aspect of all natural existence, "foreplans of action" (Lloyd Morgan) as a dynamic attribute of living organisms, and design as a necessary constituent of rational human development? These categories constitute the fringe benefits of utopian

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literature; but they are far more important than the books that embody them. Perhaps after our tour of utopias we shall be ready to explore and reclaim this more important territory, with Aristotle and Whitehead to guide us rather than Plato and Sir Thomas More.

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